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20433

Distr.
RESTRICTED

IO/R.292
8 November 1993

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

ORIGINAL: ENGLISH

ii, 39 p. tables

UPGRADING AND EXPANSION OF PHARMACEUTICAL PRODUCTION IN CAPE VERDE

XA/CVI/93/611/11-01

CAPE VERDE

Technical report: Findings and recommendations*

Prepared for the Government of the Republic of Cape Verde
by the United Nations Industrial Development Organization

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* This document has not been edited.

V.93 90022

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I. CONCLUSIONS

The first part of the mission was aimed at establishing the correct procedures for ascertaining the cost of sales at INPHARMA.

With that purpose in mind, one had obviously to set up the appropriate methodology for estimating the direct labour cost, the direct material cost and a fair share of the indirect production cost.

This took us to the concept of inventory cost, being the cost at which completed goods are carried as inventory and also the amount that is shown as cost of goods sold when the goods are sold.

It was also highlighted the importance of recognising that the cost at which goods are carried in inventory does not include distribution costs, or those general and administrative costs that are unrelated to production operations.

The concepts of variable, semi-variable and fixed costs were also illustrated.

We have also recommended the adoption of a process costing system for the new factory (under construction) - as opposed to job-order - and the rationale for this choice was given.

Secondly, the issue of planning was also considered as of critical importance, particularly if ones takes into consideration the fact that INPHARMA is presently building new facilities and also a new organizational set-up must be adopted from scratch.

With such concerns in mind, the UNIDO's consultant prepared several maps making full use of the personal computer (see annexes), and briefly trained INPHARMA' selected staff on these modern techniques.

Price setting was also considered as a major issue during the course of the whole mission, as most of INPHARMA's production is going to be sold to one customer only, i.e. EMPROFAC (which as a matter of fact is also a major shareholder).

It was agreed that there are three major considerations in price setting:

i) full costs set a floor to the price;

ii) competitors' prices and the price of substitutes provide an orienting point that INPHARMA has to

consider in setting its price; and

iii) customers' assessment of unique product features in INPHARMA's offer establish the ceiling price.

Then, the traditional method currently being adopted at INPHARMA - i.e. **mark-up pricing** - was proved and questioned. With this method, a standard mark-up, to cover the cost of production, distribution and selling the product, including a fair return for effort and risk, is normally added to the cost of the product (see page 18).

Specific objections to this method were raised - such as the fact that it ignores current demand, perceived value of the product and competition. Furthermore, it only works properly if that mark-up price actually brings in the expected level of sales.

Nevertheless, this method was not rejected outright, because it remains popular for a number of reasons:

1. Sellers have more certainty about costs than about demand. By tying the price to cost, sellers do not have to make frequent adjustments as demand changes.

2. Where all firms in the industry use this pricing method, their prices tend to be similar.

3. Many people feel that cost-plus pricing is fairer to both buyers and sellers, particularly in the pharmaceutical industry, where sellers could take advantage of buyers when the latter's demand becomes acute.

Indeed, the several analysis described in the maps of the Annexes have been based on mark-up pricing (of 20 %), and national (mark-up) prices were compared against international ones in the Portuguese generics market.

Finally, **recommendations** were made concerning alternative pricing methods, which in the consultant's opinion will provide INPHARMA with improved decision-making: going-rate pricing, sealed-bid pricing and perceived-value pricing (see Chapter 8, pages 19 and 20).

If any of these pricing methods are eventually adopted at INPHARMA, marketing costs and general and administrative costs are simply not imputed to the individual products, as the main criteria for setting prices would be current demand, perceived value of the product and competition - and not internal costs !

II. THE PREPARATORY MISSION

1. BACKGROUND

At present, the only enterprise manufacturing pharmaceutical products in Cape Verde is EMPROFAC - Empresa Nacional de Productos Farmacéuticos. In fact, since 1983 that this state-owned company has been gradually contributing for reducing the country's dependency from foreign suppliers of pharmaceuticals, to such an extent that already in 1988, 30 % of the country's needs were met by local production.

At the time, authorities at EMPROFAC realized that, although capacity utilization of its existing equipment was rather low (less than 50 % for tablets and capsules and about 30 % for all other galenical forms), the company was reaching virtually full capacity utilization of the building infrastructures which were granted by Praia Central Hospital since its inception.

Furthermore, not only internal market needs were not being met, but also the possibilities of exporting pharmaceuticals for neighbouring and Portuguese-speaking African countries simply had to be ignored.

In 1991, and as a result of these considerations, a decision was reached to create a new enterprise, with both private and state funds, which would acquire EMPROFAC' s existing equipment and use them in new, modern premises, without the bottlenecks which were present at Praia Central Hospital.

This new company was called Laboratorios INPHARMA, and it is mainly the outcome of a mutually beneficial relationship between EMPROFAC and Laboratorios LABESFAL for many years - the latter being a privately-owned Portuguese generics company, based in the district of Viseu, in Portugal.

In this new organisation, LABESFAL gains from getting a foothold in the Cape Verde internal market, and the State (EMPROFAC) gains from its partner's international marketing know-how and experience in overseas markets for generics.

Besides INPHARMA's main two shareholders - EMPROFAC owns 40 % of the shares and LABESFAL another 40 % - the local private sector is also well represented with the remaining 20 % of the total shares. The total value of the issued share capital is 50.000 CV Contos.

In the new set-up, EMPROFAC will still be responsible for importing and distributing drugs (both the locally-produced and the imported ones) in the internal market; and INPHARMA will produce drugs essentially for the local market, but by the end of the decade, it is foreseen that will export roughly US $ 2,5

million, mainly to Angola, Guinea-Bissau, Mozambique and neighbouring countries.

The range of products to be manufactured by INPHARMA is very wide, as roughly sixty products have been selected from Cape Verde's essential drug list, and include tablets, capsules, syrups, suspensions, creams, suppositories and ovules.

All active ingredients, excipient and packaging materials, will be imported through international bidding criteria.

When the team of consultants from UNIDO arrived at the scene during the month of July, the construction of the new factory was progressing at a good pace, and it was being foreseen to initiate production still during the course of the current year - although with some delay in relation to previous forecasts.

2. OBJECTIVES

During the initial contacts between INPHARMA's Managing Director and UNIDO's Financial and Market Analyst, both realized that, due to the particular and unique circumstances under which Laboratorios INPHARMA was operating at the time, other, more pressing objectives for its mission (of three weeks) had to be established.

Some of the circumstances were the following:

a. INPHARMA had recently exported successfully an order worth roughly US $700 000 to Angola, in which the role of manufacturing the goods was carried out by EMPROFAC, and INPHARMA negotiated the deal; more similar transactions were foreseen in the near future.

b. Sensitive negotiations between EMPROFAC and INPHARMA were imminent at the time, concerning future pricing policies between the two organizations, which required accurate and detailed information about international current pricing structures for drugs, as well a thorough understanding of what INPHARMA's internal cost structure will be, when the new factory is built and fully operational.

As a result of such considerations, Mrs. Judith Lima - INPHARMA's Managing Director - approved the following (revised) objectives for the mission of the UNIDO's Financial and Market Analyst:

1. To evaluate current prices of generic drugs in the international markets, and in particular the prices of the ones in the essential drug list;

2. To estimate INPHARMA's internal full cost structure, and ascertain whether it is competitive in the international generics market;

3. To revise/improve the existing methodology of treating industrial costs;

4. To introduce more modern, computerized techniques for planning and controlling INPHARMA's business; and

5. To provide training on the new techniques developed on the personal computer to INPHARMA' selected staff.

3. CONSTRAINTS

Both INPHARMA's Managing Director and UNIDO's consultant recognized that the original assigned objectives for the mission - i.e. to address the specific requirements of the country in order to upgrade its pharmaceutical industry, stressing the relevant aspects, national demand market for PALOP countries, quality requirements, new production techniques and economic aspects - could not be met in the allocated time of three weeks.

The required information for addressing the issue of estimating the national demand market for neighbouring and Portuguese-speaking African countries, could not be obtained without travelling to such countries, as the local state organisation which encourages exports (i.e. PROMEX) did not have any relevant information about the pharmaceutical sector of the selected potential markets.

Attempts were conducted by the UNIDO's consultant to obtain some information about market size and market growth in those selected countries through the enterprise I.M.S., which owns an international pharmaceutical database in London, for both the private and public sectors.

However, it was found out (through LABESFAL) later on that I.M.S. does not have complete and reliable information about those selected countries.

4. ACTIVITIES UNDERTAKEN AND NEW METHODS PROPOSED

The mission started by a tour to the factory which is presently under construction, guided by INPHARMA's Managing Director herself. Both UNIDO's Financial and Pharmaceutical consultants took the opportunity for raising several questions and requesting additional information, which was provided mostly in the following day.

Thereafter, several meetings took place between INPHARMA's M.D. and UNIDO's Financial & Market Analyst, in order to establish clearly what the objectives of the mission should be. During the course of this initial process, the above-mentioned consultant was also requested to comment on the appropriate methods and procedures for the valuation of equipment - which were to be acquired from the state-owned enterprise EMPROFAC - and provide personal computer training to INPHARMA' selected staff on the use of spreadsheet software (Lotus 123) in calculating prices for raw materials and packaging materials.

In the meantime, a fax was sent to LABESFAL, requesting them to contact I.M.S. in London (or in Lisbon), for the purpose of ascertaining whether relevant and updated market information about the selected countries was available or not !

On Monday, 12th July, it was agreed that it would be extremely helpful for INPHARMA to have a computerized planning model, allowing the conduction of "what-if" analysis in the near future. Then, the UNIDO's consultant spent the whole week preparing such model in the personal computer, making use of spreadsheet software. Several updates were made, always discussing fully the implications of each version with INPHARMA's M.D., and listening and incorporating all recommendations. The outputs of such planning model are shown in the annex I, where it can be seen as the new proposed methodology of separating marketing costs, and general and administrative costs from industrial costs, in the planning process.

During the third (and final week), it was decided to develop the computerized model described in the annexes II and III, as a result from the fact that full production costs at INPHARMA had to be equated against current pricing practices and international pricing practices, particularly as far as its product list is concerned. Furthermore, it was also recognized that the planning process to be adopted at INPHARMA for the following year had to be very detailed (i.e. per product and pack size).

In the several meetings which took place, particular attention was given to the question of how to allocate a fair share of the indirect production costs to the cost of a product. The final method which was selected - i.e. based on single dose units and not on individual units - constitutes an important stepping-stone, when compared against current practices in the country.

The planning model described at Annex II was developed by the UNIDO's consultant with inputs provided by INPHARMA' sales staff during the final week.

Finally, the planning model described at Annex III aims at analysing in detail INPHARMA's full cost structure, is based

partially on annex II, and represents the key findings of the work conducted by the UNIDO's consultant.

For example, the two columns called "Wholesaler Prices" illustrate, firstly the prices which can be practiced at INPHARMA based on a mark-up of 20 % (on full cost); and the equivalent prices practiced in the Portuguese market, for comparison purposes.
The column "Unit Margin" is simply "Wholesaler price" less "Direct Cost".

The column "Total Production Costs" is simply the sum of column "Direct Product Cost" with "Indirect Production Cost", on a unitary basis.

The column "Fixed Costs" includes all types of costs - and not industrial costs alone - also on an unitary basis.

The last three columns illustrate the same sort of concepts, but already incorporating the impact of the total packs which INPHARMA anticipates to sell next year, and which are shown at Annex II.

Concerning the issue of price setting, annex III also illustrates how the traditional mark-up pricing method operates. Although the UNIDO's consultant did not recommend to reject it outright, he pointed out the advantages for INPHARMA to adopt other, more sophisticated methods - such as going-rate pricing, sealed-bid pricing and perceived-value pricing.

Finally, the last two days' work were spent training the INPHARMA selected sales executive in the use of these new, modern techniques, and in particular how to conduct in the future sensitivity analysis.

III. COST CONCEPTS AND SYSTEMS

As several specific terms will be used often throughout the whole report, and as they are not always necessarily present in everybody's minds when reference is made to them, we thought it appropriate to define them beforehand.

Direct Production Costs are all those that actually become part directly of the finished product, and as such are exclusively imputed to such product.

They include not only **Direct Material Costs** - which are those active ingredients, excipient and packaging materials that are to be distinguished from supplies or indirect materials, the latter being used in the production process but not in the product itself - but also **Direct Labour Costs** - which are those that can be specifically traced to or identified with the product, such as the wages of workers who assemble parts into a finished product, or who operate machines in the process of production.

Prime Cost is defined as the sum of direct labour cost and direct material cost.

Indirect Production Cost (or Overhead Costs) includes all production costs other than direct material and direct labour. One of its elements is **indirect labour**, which represents the earnings of employees who do not work directly on a single product but whose efforts are related to the overall process of production. Another element is **indirect material costs**, as well as services such as heat, light, power, maintenance, depreciation, taxes and insurance related to assets used in the production process.

Full Production Cost (or Inventory Cost) is the sum of direct material, direct labour, and indirect production costs. It is the cost at which completed goods are carried as inventory and the amount that is shown as cost of goods sold when the goods are sold.

Note that the cost at which goods are carried in inventory does **not** include distribution costs, or those general and administrative costs that are unrelated to production operations. It includes only the costs that are incurred "up to the factory exit door".

The full cost of producing goods is the sum of the direct costs of these goods plus a fair share of the indirect costs incurred for the production of these and other goods. However, in practice Cost Accountants often use the term "full cost" to mean only "full production cost".

Variable Costs are items of cost that vary directly and proportionately with volume. Direct material, direct labour, lubricants, power cost and supplies are examples of variable costs.

Semi-variable Costs are those that do no vary entirely as a function of fluctuations in volume (although they do vary in the same direction). For example, earnings of Medical Representatives, maintenance and clerical costs, etc.

Fixed Costs are those costs that do not vary at all with volume (or do not "automatically" change with volume). For example, insurance, building depreciation, property taxes, supervisory salaries and occupancy costs (heat and light).

Direct Cost versus Variable Cost

It is important to stress the fact that much confusion between direct and variable costs normally exists in practice, because many costs that are direct to the product are also variable with the production volume of the product.

As a result, people tend to use the words "direct" and "variable" interchangeably, as well the terms "indirect" and "fixed" as synonyms, when they are not !

However, the two sets of terms are based on very different concepts: the direct/indirect dichotomy relates to the traceability of costs to cost objectives, whereas the variable / fixed dichotomy relates to the behavior of costs as volume fluctuates.

JOB-ORDER COSTING AND PROCESS COSTING

There are two fundamental classifications of costing systems:

1) in unit production, where the focus of activity is a physically identifiable job, a job-order cost system is normally adopted; and

2) in process production, where outputs are not identifiable as individual units of product until late in the production process (such as in the production of chemicals), a process cost system is normally adopted.

In this latter case, one may calculate the costs for the period, and indirectly, knowing what the production is for the period, unit average costs might be obtained by taking those total costs and dividing them by the number of units / doses produced in the same period.

IV. COST MEASUREMENT (IN A PROCESS COST SYSTEM)

1. Measurement of Direct Labour Costs

Here, one has to measure the quantity of labour time expended, and ascertain the price per unit of labour time. Measuring the quantity of labour time is normally conducted through a daily timecard, which is usually kept for each direct worker, and on it a record is made of the time the worker spends on each cost centre.

Pricing these labour times is normally conducted on the basis of on average labour rate for all the direct labour employees in a department of a given skill classification, irrespective of whether there is variation in the actual rates paid to employees in any given category. All other labour-related costs paid by the employer - such as pension contributions and other fringe benefits - may be treated as part of indirect (production) costs, although accuracy can be gained by treating them as direct costs.

2. Measurement of Direct Material Costs

The measurement of direct material cost also has the two aspects of the quantity of material used and the price per unit of quantity.

The quantity is usually determined from requisitions that are used to order material out of the storeroom and into production. Material may be priced at solely its purchase or invoice cost, or there may be added some or all of the following material-related costs, such as inward freight, inspection costs, moving costs, purchasing department costs and interest and space charges associated with holding material in inventory.

3. Allocation of Indirect Production Costs

The cost of a product includes, in addition to its direct costs, a fair share of the indirect costs that were incurred for several products. For this purpose, indirect production costs have to be allocated to products by means of an overhead rate. Usually this rate is established annually, prior to the beginning of the accounting year.

In a cost accounting system, items of cost are first accumulated in cost centres, and then they are assigned to products. There are two types of cost centres: production cost centres and service cost centres.

For example, at Laboratorios INPHARMA one may identify the following production cost centres for tablets and capsules:

1. Washing
2. Filling up
3. Labelling
4. Coding and creation of the cardboard
5. Packaging
6. Drying

All other cost centres are service cost centres. The maintenance department and the general factory office are examples.

The allocation of indirect production cost to final products may involve three steps:

1. All indirect production costs for an accounting period are assigned to the service and production cost centres.

2. The total cost accumulated in each service cost centre is reassigned to production cost centres.

3. The total indirect costs accumulated in each production cost centre, including the reassigned service cost centres, are allocated to final products.

Normally, this final step is conducted, calculating firstly the total equivalent units of production (i.e. single dose units) for the period in question, and the total indirect production cost is divided by the number of single dose units; this gives the unit indirect production cost for each product.

A simpler and better way of allocating indirect production costs at Laboratorios INPHARMA is to establish an overhead rate in advance, usually once a year, and then to use these predetermined overhead rates throughout the year.

Furthermore, calculating an estimated annual overhead rate (per single dose unit) in advance is preferable to computing an actual rate at the end of each month, for three reasons:

1. If overhead rates were computed monthly at INPHARMA, they would be unduly affected by conditions peculiar to that month, and misleading information on indirect production costs would be presented if the indirect production costs assigned to products were affected by these fluctuations;

2. The use of a predetermined overhead rate (per single dose unit) will permit INPHARMA to calculate more promptly product costs. Direct material and direct

labour costs can be assigned to products as soon as the time records and material requisitions are available. If, however, overhead rates were calculated only at the end of each month, indirect production costs could not be assigned to products until after all the information on indirect production costs for the month had been assembled. With the use of a predetermined overhead rate (per single dose unit), indirect costs can be allocated to products at the same time that direct costs are assigned to them.

3. Calculation of an overhead rate (per single dose unit) once a year requires less effort (and money) than going through the same calculation every month.

The correct procedure for establishing predetermined overhead rates (per single dose unit) is to base the activity levels and costs on what are estimated to be during the coming year, rather than what they actually were.

Finally, with this selected methodology, the question of under-absorbing or over-absorbing indirect production costs must obviously be placed at INPHARMA, as the amount of indirect production costs "absorbed by" products in a given month is likely to differ from the amount of indirect costs actually incurred in that month.

This is because the actual activity level for the month is likely to be different from the estimates that were used when the predetermined overhead rate (per single dose unit) was calculated.

If the amount of the indirect cost absorbed by products exceeds the amount actually incurred, indirect production costs are said to be over-absorbed; and if the amount is less, indirect production costs are under-absorbed.

From a cost accounting point of view, these discrepancies should be treated in an Overhead Variance account.

V. INTERNAL FULL COST STRUCTURE AT INPHARMA

At Annex I, what we have done was to estimate the cost structure for Laboratorios INPHARMA, broken down into industrial costs, general and administrative costs and marketing costs, during the planning period 1994 to 1997.

The structure of accounts we have considered was taken directly from the official Plan of Accounts approved in the country.

The cost breakdown was based on the following concepts:

Industrial costs are the sum of direct material, direct labour and indirect production costs - as we have already seen in Chapter 3 above. We have estimated them to be 20 136 C.V. Contos for next year. (See Annex I, page 2).

Marketing costs cover marketing management, advertising, sales promotion, public relations, medical representatives' compensation and expenses, warehousing finished goods, billing costs and transportation costs. We have estimated them to be 22 155 C.V. Contos for 1994. (See Annex I, page 3).

General costs are all costs incurred in the general and executive offices. We have estimated them to be 2 698 C.V. contos for 1994. (See Annex I, page 4).

Administrative costs cover all items not included in the above categories: research, development, and engineering costs, donations and miscellaneous items, and may include the cost of interest on borrowed funds. We have estimated them to be 22 155 C.V. Contos for next year. (See Annex I, page 5).

The Full Cost of Product is simply the sum of all the cost elements described above. For 1994, we have estimated them to be 46 501 C.V. Contos. (See Annex I, page 1).
Note: however, in practice cost accountants often use the term "full cost" to mean only "full production cost".

For the following two years (i.e. 1995 and 1996), we have simply assumed that all costs will grow by an average of 6 % per year.

VI. PLANNING SALES, COST OF SALES AND OVERHEADS AT INPHARMA

Annex II allows us to plan sales for next year for individual products, per pack size, for both the public and the private sector, in the generics (national) market. The sales input figures per pack size were supplied by the INPHARMA' sales executive, Mr. M. Elesio Silva.

No figures were supplied for the export market, because it was assumed that all production in year 1 will be channelled to the local market / EMPROFAC.

As it would not make sense to add packs of different sizes, what the UNIDO's consultant has done was to convert all different packs to a common denominator - called the total equivalent units of production - which in our case corresponds to the "Single Dose Units" column.

We have estimated that the total equivalent units of production will be 34,5 million single dose units during 1994, broken down as follows (see annex II):

1) for tablets and capsules, they will be almost 19 million single dose units (one tablet is equivalent to one single dose unit);

2) for drops they will be about 1.2 million single dose units / ml;

3) for syrups they will be 7.5 million single dose units (five ml are equivalent to one single dose unit);

4) for all other liquids, they will be about 1.7 million single dose units (ten ml are equivalent to one single dose unit);

5) for ointments and creams they will be 4.8 million single dose units / gr.; and

6) for suppositories they will be 400 000 single dose units.

As the indirect production costs for next year have been estimated to be 20 136 contos C.V. (see Annex I, page 2), the indirect production unit cost for each individual product during 1994 will be 0.583 per single dose unit.

This predetermined overhead rate for the whole of next year is then allocated to each individual product according to its pack size (see Annex III, column "Indirect Production Costs, in C.V. Escudos per pack size").

The function of the overhead rate is to allocate an equitable amount of indirect cost to each product.

At Laboratorios INPHARMA, and because we have chosen the "single dose unit" as the main allocation criterion, a product served in a pack size of, say 1000 tablets, should absorb indirect costs twice more than a product served in a pack size of 500 tablets (compare for example, the indirect production cost of Cimetidine 400 mg, pack of 1000, i.e. 583$31, against the one for Chlordiazepoxide 10 mg, pack of 500, i.e. 291$65).

This obviously raises the question of why, in all fairness, should one product have a higher indirect cost than another product ? Well, depending on the circumstances, the following are among the plausible answers to this question:

1. Because more labour effort was expended on one product than on another, and indirect costs are presumed to vary with the amount of labour effort.

2. Because one product used more machine time than another, and indirect costs are presumed to vary with the amount of machine time.

3. Because one product had higher direct costs than another and was therefore able to "afford" a higher amount of indirect costs.

The next column - i.e. "Total Production Cost" - is obviously the sum of the column "Direct Production" with the column "Indirect Production Cost". For example, for the first product in the map, 291$07 plus 583$31 gives 874$38 for total production costs..

Important Note: the column called "Unitary Full Cost" in the maps supplied in Cape Verde by the UNIDO's consultant , have included all costs (i.e. industrial, distribution, general and administrative costs), for the sake of simplicity, to facilitate the imminent process of negotiations on pricing policies between INPHARMA and EMPROFAC. However, from a technical point of view, the allocation criterion described above (i.e. the "single dose unit"), should be applied solely for indirect production costs (and not for full costs). See also Chapter 8 below, concerning the selection of an appropriate pricing method.

VII. PRICE LEVEL OF DRUGS IN THE INTERNATIONAL MARKETS

Firstly, a preliminary analysis was conducted - which was based on a report provided by the UNIDO's pharmaceutical consultant, Mr. Juarez Hygino - aiming at ascertaining what prices are currently practiced by international wholesaler drug organizations (such as Medco, I.D.A., Unicef, Rhodesian Drug Services, and Eastern Caribbean Drug Services), concerning Cape Verde 's essential drugs list.

The INPHARMA Managing Director's comment about this preliminary analysis was that the quality standards of some of these organizations were too soft, and this is the reason why they could practice such low prices for generics.

Then, it was suggested to UNIDO's consultant to use in his analysis the prices which are currently practiced in LABESFAL's market, i.e. Portugal.

Column 4 in Annex III illustrates the analysis we have conducted in this regard: firstly, prices to the consumer were converted to wholesaler prices (at the rate of 1.20), the exchange rate used for the Portuguese escudo was 0.5, price increases for the current year were assumed to be 5.5 % and finally a common denominator was adopted as far as pack sizes is concerned, to allow direct comparisons.

While the values we have taken for column 4 were solely based on market considerations, column 3 in Annex III was based on internal cost considerations: here, wholesaler prices in the national market were assumed to be based on a markup of 20 % on total fixed costs.

When one compares wholesaler prices in the national market against the ones practiced in the Portuguese market, the results confirm that a markup of 20 % on INPHARMA's total production costs is competitive. Nevertheless, it is important to highlight that the prices of drugs in Portugal are generally inflated, because only in this current year generic manufacturers have been allowed to enter in the market.

The last three columns of Annex III summarize sales, cost of sales and margins, in CV contos, based on the total number of packs estimated to be sold for individual products (see Annex II, second last column).

The column "Total sales" is the result of the multiplication between total packs to be sold and their respective wholesaler prices. Its total estimated value for 1994 is 119 425 CV contos.

The column "Cost of sales" results from the multiplication of total packs to be sold with their respective "Direct production

costs". Its estimated value for next year is 53 020 CV contos.

Finally, the column "**Total Margin**" results from multiplying the column "Unit Margin" with the column "Total packs sold" in Annex II. Its estimated value for 1994 is 119 425 less 53 020, or 66 405 CV contos (see Annex III, page 3).

Now, if one deducts from the Total Margin all estimated Fixed Costs (i.e. 46 501 CV contos), the remaining represents **INPHARMA's estimated Net Profits before taxes** for 1994, i.e. 19 904 CV contos.

VIII. SELECTING A PRICING METHOD AT INPHARMA

In general terms, there are three major considerations in price setting:

i) full costs set a floor to the price;

ii) competitors' prices and the price of substitutes provide an orienting point that the company has to consider in setting its price; and

iii) customers' assessment of unique product features in the company's offer establish the ceiling price.

1. Mark-up pricing

The most elementary pricing method is to add a standard markup to the cost of the product, to cover the cost of producing, distributing and selling the product, including a fair return for its effort and risk. To illustrate markup pricing, let us take as an example the product Amoxicillin 250 mg oral suspension, pack of 100 ml. (see Annex III, page 2, section Syrups, 1st line):

Variable cost: 94$05 CV per pack of 100 ml.

Fixed cost: 46 501 000 $ CV

Expected single dose unit sales: 34 520 400

As the pack has 20 single dose units (5 ml. are equivalent to one dose), we have:

$$\text{Fixed cost (per pack)} = \frac{46\,501\,000}{34\,520\,400} * 20 \text{ doses} = 26\$94$$

Therefore, INPHARMA's unit total cost for this specific product is given by:

Unit total cost: 94$05 + 26$94 = 120$99

Now if one assumes that INPHARMA wants to earn a 20 per cent markup on costs, the total selling price will be 145$18 (see column 3, Annex III).

The question is whether the use of standard markups to set prices make logical sense ! In our opinion, generally no ! This is because any pricing method that ignores current demand, perceived value of the product and competition is not likely to lead to the optimal price. Suppose that INPHARMA sells only 15 000 packs instead of the planned 30 000. Then the unit cost would have been

higher, since the fixed costs are spread over fewer units.

Mark-up pricing only works if that price actually brings in the expected level of sales (in our example, 30 000 packs for "Amoxicillin 250 mg oral suspension" and 34.5 million single dose units for the whole year).

Still, mark-up pricing remains popular everywhere for a number of reasons:

1. Sellers have more certainty about costs than about demand By tying the price to cost, sellers do not have to make frequent adjustments as demand changes.

2. Where all firms in the industry use this pricing method, their prices tend to be similar.

3. Many people feel that cost-plus pricing is fairer to both buyers and sellers, particularly in the pharmaceutical industry, where sellers could take advantage of buyers when the latter's demand becomes acute.

2. Going-rate Pricing

In going-rate pricing, INPHARMA would base its prices largely on competitors' prices, with less attention paid to its own cost or demand. INPHARMA might obviously charge the same, more, or less than its major competitor(s). In the international generics market, firms normally charge virtually the same prices, with the smaller firms "following the leader(s)". Normally, the smaller firms change their prices when the market leader's prices change rather than when their own demand or cost changes.

Going-rate pricing is quite popular, because the going price is thought to reflect the industry's collective wisdom as to the price that would yield a fair return and not jeopardize industrial harmony.

3. Sealed-bid Pricing

In this situation, INPHARMA bases its prices on expectations of how competitors will price rather than on a rigid relation to the firm's costs or demand. Here, INPHARMA will want to win the contract, and winning normally requires submitting a lower price than competitors - as it recently occurred in the bid for supplying the military in Angola.

Yet INPHARMA cannot set its price below a certain level. It cannot price below cost without worsening its position. On the

other hand, the higher it sets its price above its costs, the lower its chance of getting the contract.

The net effect of the two opposite pulls can be described in terms of the bid's expected profit (see Table below).

INPHARMA'S BID	INPHARMA'S PROFIT	PROBABILITY OF GETTING AWARD WITH THIS BID (ASSUMED)	EXPECTED PROFIT
US $ 500 000	180 000$ CV	0.50	90 000$ CV
US $ 600 000	2 700 000$ CV	0.25	675 000$ CV
US $ 700 000	3 600 000$ CV	0.20	--- > 720 000$ CV
US $ 800 000	4 410 000$ CV	0.05	220 050$ CV

Suppose a bid of $ 500 000 would yield a high chance of getting the contract, say, 50 %, but only a low profit, say 180 000$ CV. The expected profit with this is therefore 90 000$ CV.
If INPHARMA bid US $ 800 000, its profit would be 4 410 000$ CV, but its chance of getting the contract might be reduced, say to 5% . The expected profit would be only 220 050$ CV.

One logical bidding criterion would be to bid the price that would maximize the expected profit. According to table above, the best bid for INPHARMA would be US $ 700 000, for which the expected profit is 720 000$ CV.

Using expected profit as a criterion for setting prices makes a lot of sense if one expects INPHARMA to make many bids. In playing the odds, INPHARMA will achieve maximum profits in the long run. However, if it bids only occasionally or if it needs a particular contract badly will not find it advantageous to use the expected-profit criterion.

4. Perceived-value Pricing

An increasing number of companies with sophisticated marketing practices are basing their price on the product's perceived value. The key to this method is to accurately determine the market's perception of the offer's value (i.e. products and the image of the company as a whole).

Market research is needed to establish the market's perception of value as a guide to effective pricing. However, it can safely be said that pharmaceutical customers value highly criteria such as "superior reliability", "superior durability", "longer credit terms", "shorter time deliveries", etc. - to such an extent that

premium prices may sometimes be practiced in relation to the competition, without adversely affecting the sales volume.

Normally, the adoption of perceived-value pricing is preceded by the creation of generic brand names, to allow product differentiation based on considerations other than price.

IX. RECOMMENDATIONS

Having in mind INPHARMA's present initial stage of development and high growth potential, the UNIDO's consultant strongly believes that the major priorities for INPHARMA at this stage are to ensure that the unit being built becomes efficient and with a competitive cost structure that will allow it at a much later stage to conduct successful experiments in the international pharmaceutical marketplace.

Therefore, what we recommend is to conduct activities in the areas of **cost and management accounting**, namely:

1) to assist in the implementation of an appropriate process costing system, based on the general guidelines of this report;

2) to design and assist in the implementation of an adequate budgeting and planning system;

3) to design and assist in the implementation of a standard costing system;

4) to design and assist in the implementation of responsibility centres.

In the area of **computerized information systems**, we recommend providing support in the implementation of functional packages - such as Stocks, Salaries, Accounting, Invoicing, Management of Suppliers and Customers, etc - as well as in assisting with the appropriate organizational adjustments that have to take place when such new computerized systems are implemented.

In the area of **training**, we recommend assisting INPHARMA' selected staff with the use of personal computers, in particular with Windows-based spreadsheet and wordprocessing software, and their impact on productivity in the office.

From a **marketing** point of view, and having in mind that INPHARMA has got virtually guaranteed the internal market - via its major customer and shareholder EMPROFAC - we only envisage major consulting activities to be undertaken in this regard at a much later stage in its development (in year 3).

LABORATORIOS UNPHARMA – Planning for the period 1994-97 ANNEX I

CODE	ACCOUNT NAME	1992	1993	1994	1995	1996	1997
631	GOODS SUPPLIERS						
6311	Water	285		390	413	438	464
6312	Energy	540		1 500	1 590	1 685	1 787
6313	Fuel & Oil	31		200	212	225	238
6314	Repair & Mainten. (Goods)	103		150	159	169	179
6315	Tools (w/ short life-span)	4		20	21	22	24
6316	Office Supplies	139		200	212	225	238
6317	Advert & Sales Promot.(Goods)	0		50	53	56	60
6318	Other Suppliers	204		300	318	337	357
631	SUB-TOTAL	1 307	0	2 810	2 979	3 157	3 347
632	SERVICE SUPPLIERS (II)						
6321	Rents & Leasing	0		0	0	0	0
6322	Entertainment expenses	0		60	64	67	71
6323	Repair & Mainten. (Services)	134		150	159	169	179
6324	Communications	89		600	636	674	715
6325	Insurance	240		900	954	1 011	1 072
6326	Advert. & Sales Promot.(Serv.)	33		150	159	169	179
6327	Specialised Work	3 994		420	445	472	500
632	SUB-TOTAL	4 490	0	2 280	2 417	2 562	2 716
633	SERVICE SUPPLIERS (I)						
6331	Goods transport	50		0	0	0	0
6332	Staff transport	42		300	318	337	357
6333	Lodging, meals & transport	121		500	530	562	596
6335	Fees	180		240	254	270	286
6336	Legal costs	0		0	0	0	0
6338	Other services	658		50	53	56	60
633	SUB-TOTAL	1 051	0	1 090	1 155	1 225	1 298
63	TOTAL	6 848	0	6 180	6 551	6 944	7 360
64	Indirect & Direct Taxes	2 106		300	318	337	357
65	STAFF COSTS						
651	Salaries – Management	0		1 200	1 272	1 348	1 429
652	Wages & salaries	7 002		7 787	8 254	8 749	9 274
653	Overtime & others	1 730		970	1 028	1 090	1 155
654	Employer's contributions	1 171		1 168	1 238	1 312	1 391
655	Staff training	73		100	106	112	119
657	Staff insurance	153		200	212	225	238
658	Sundry staff costs	84		100	106	112	119
65	TOTAL	10 283	0	11 525	12 216	12 949	13 726
67	FINANCIAL COSTS	1 271		16 826	17 836	18 906	20 040
68	SUNDRY COSTS	303		100	106	112	119
69	DEPRECIATION & PROVISIONS	7 751		11 570	12 264	13 000	13 780
	T O T A L	28 606	0	48 501	49 291	52 248	55 383

LABORATORIOS INPHARMA - Planning for the period 1993-97 ANNEX I

CODIGO	INDUSTRIAL COSTS	1992	1993	1994	1995	1996	1997
631	GOODS SUPPLIERS						
6311	Water			300	318	337	357
6312	Energy			1 100	1 166	1 236	1 310
6313	Fuel & Oil				0	0	0
6314	Repair & Mainten. (Goods)			150	159	169	179
6315	Tools (w/ short life-span)			20	21	22	24
6316	Office Supplies				0	0	0
6317	Advert. & Sales Promot.(Goods)				0	0	0
6318	Other Suppliers				0	0	0
631	SUB-TOTAL			1 570	1 664	1 764	1 870
632	SERVICE SUPPLIERS (II)						
6321	Rents & Leasing				0	0	0
6322	Entertainment expenses				0	0	0
6323	Repair & Mainten. (Services)			150	159	169	179
6324	Communications				0	0	0
6325	Insurance				0	0	0
6326	Advert. & Sales Promot.(Serv.)				0	0	0
6327	Specialised Work				0	0	0
632	SUB-TOTAL			150	159	169	179
633	SERVICE SUPPLIERS (I)						
6331	Goods transport				0	0	0
6332	Staff transport				0	0	0
6333	Lodging, meals & transport				0	0	0
6335	Fees				0	0	0
6336	Legal costs				0	0	0
6338	Other services				0	0	0
633	SUB-TOTAL	0	0	0	0	0	0
63	TOTAL	0	0	1 720	1 823	1 933	2 049
64	Indirect & Direct Taxes						
65	STAFF COSTS						
651	Salaries - Management				0	0	0
652	Wages & salaries			4 849	5 140	5 448	5 775
653	Overtime & others			970	1 028	1 090	1 155
654	Employer's contributions			727	771	817	866
655	Staff training				0	0	0
657	Staff insurance			200	212	225	238
658	Sundry staff costs			100	106	112	119
65	TOTAL			6 846	7 257	7 692	8 154
67	FINANCIAL COSTS						
68	SUNDRY COSTS						
69	DEPRECIATION & PROVISIONS			11 570	12 244	13 000	13 760
	T O T A L	0	0	20 136	21 344	22 825	25 982

LABORATORIOS INPHARMA – Planning for the period 1994-97 ANNEX I

CODIGO	MARKETING COSTS	1992	1993	1994	1995	1996	1997
631	GOODS SUPPLIERS						
6311	Water				0	0	0
6312	Energy			100	106	112	119
6313	Fuel & Oil				0	0	0
6314	Repair & Mainten (Goods)				0	0	0
6315	Tools (w/ short life-span)				0	0	0
6316	Office Supplies				0	0	0
6317	Advert. & Sales Promot.(Goods)			50	53	56	60
6318	Other Suppliers				0	0	0
631	SUB-TOTAL			150	159	169	179
632	SERVICE SUPPLIERS (II)						
6321	Rents & Leasing				0	0	0
6322	Entertainment expenses				0	0	0
6323	Repair & Mainten (Services)				0	0	0
6324	Communications			100	106	112	119
6325	Insurance				0	0	0
6326	Advert. & Sales Promot.(Serv.)			150	159	169	179
6327	Specialised Work				0	0	0
632	SUB-TOTAL			250	265	281	298
633	SERVICE SUPPLIERS (I)						
6331	Goods transport				0	0	0
6332	Staff transport				0	0	0
6333	Lodging meals & transport			200	212	225	238
6335	Fees				0	0	0
6336	Legal costs				0	0	0
6339	Other services				0	0	0
633	SUB-TOTAL			200	212	225	238
63	TOTAL			600	636	674	715
64	Indirect & Direct Taxes						
65	STAFF COSTS						
651	Salaries – Management				0	0	0
652	Wages & salaries			793	841	891	944
653	Overtime & others				0	0	0
654	Employer's contributions			119	126	134	142
655	Staff training				0	0	0
657	Staff insurance				0	0	0
658	Sundry staff costs				0	0	0
65	TOTAL			912	967	1 025	1 086
67	FINANCIAL COSTS						
68	SUNDRY COSTS						
69	DEPRECIATION & PROVISIONS				0	0	0
	T O T A L			1 512	1 603	1 699	1 801

CODIGO	GENERAL COSTS	1992	1993	1994	1995	1996	1997
631	GOODS SUPPLIERS						
6311	Water				0	0	0
6312	Energy			100	106	112	119
6313	Fuel & Oil			200	212	225	238
6314	Repair & Mainten. (Goods)				0	0	0
6315	Tools (w/ short life-span)				0	0	0
6316	Office Supplies			50	53	56	60
6317	Advert & Sales Promot (Goods)				0	0	0
6318	Other Suppliers				0	0	0
631	SUB-TOTAL			350	371	393	417
632	SERVICE SUPPLIERS (II)						
6321	Rents & Leasing				0	0	0
6322	Entertainment expenses			60	64	67	71
6323	Repair & Mainten. (Services)				0	0	0
6324	Communications			100	106	112	119
6325	Insurance				0	0	0
6326	Advert & Sales Promot (Serv)				0	0	0
6327	Specialised Work				0	0	0
632	SUB-TOTAL			160	170	180	191
633	SERVICE SUPPLIERS (I)						
6331	Goods transport				0	0	0
6332	Staff transport				0	0	0
6333	Lodging meals & transport			300	318	337	357
6335	Fees				0	0	0
6336	Legal costs				0	0	0
6338	Other services				0	0	0
633	SUB-TOTAL			300	318	337	357
63	TOTAL			810	859	910	965
64	Indirect & Direct Taxes						
65	STAFF COSTS						
651	Salaries - Management			1 200	1 272	1 348	1 429
652	Wages & salaries			598	634	672	712
653	Overtime & others				0	0	0
654	Employer's contributions			90	95	101	107
655	Staff training				0	0	0
657	Staff insurance				0	0	0
658	Sundry staff costs				0	0	0
65	TOTAL			1 888	2 001	2 121	2 248
67	FINANCIAL COSTS						
68	SUNDRY COSTS						
69	DEPRECIATION & PROVISIONS				0	0	0
	T O T A L			2 698	2 860	3 031	3 213

CODICO	ADMINISTRATIVE COSTS	1992	1993	1994	1995	1996	1997
631	GOODS SUPPLIERS						
6311	Water			90	95	101	107
6312	Energy			200	212	225	238
6313	Fuel & Oil				0	0	0
6314	Repair & Mainten (Goods)				0	0	0
6315	Tools (w/ short life-span)				0	0	0
6316	Office Supplies			150	159	169	179
6317	Advert & Sales Promot (Goods)				0	0	0
6318	Other Suppliers			300	318	337	357
631	SUB-TOTAL			740	784	831	881
632	SERVICE SUPPLIERS (II)						
6321	Rents & Leasing				0	0	0
6322	Entertainment expenses				0	0	0
6323	Repair & Mainten (Services)				0	0	0
6324	Communications			400	424	449	476
6325	Insurance			900	954	1 011	1 072
6326	Advert & Sales Promot (Serv.)				0	0	0
6327	Specialised Work			420	445	472	500
632	SUB-TOTAL			1 720	1 823	1 933	2 049
633	SERVICE SUPPLIERS (I)						
6331	Goods transport				0	0	0
6332	Staff transport			300	318	337	357
6333	Lodging meals & transport				0	0	0
6335	Fees			240	254	270	286
6336	Legal costs				0	0	0
6338	Other services			50	53	56	60
633	SUB-TOTAL			590	625	663	703
63	TOTAL			3 050	3 233	3 427	3 633
64	Indirect & Direct Taxes			300	318	337	357
65	STAFF COSTS						
651	Salaries – Management				0	0	0
652	Wages & salaries			1 547	1 640	1 738	1 843
653	Overtime & others				0	0	0
654	Employer's contributions			232	246	261	276
655	Staff training			100	106	112	119
657	Staff insurance				0	0	0
658	Sundry staff costs				0	0	0
65	TOTAL			1 879	1 992	2 111	2 238
67	FINANCIAL COSTS			16 825	17 836	16 906	20 040
68	SUNDRY COSTS			100	106	112	119
69	DEPRECIATION & PROVISIONS				0	0	0
	T O T A L			22 154	23 484	24 893	26 387

PRODUCTS	PACK SIZE	S A L E S 1 9 9 4									
		NATIONAL MARKET			EXPORT			TOTAL			SINGLE DOSE
		PRIVATE	PUBLIC	TOTAL	PRIV	PUBL	TOTA	PRIVATE	PUBLIC	TOTAL	
TABLETS & CAPSULES	UNIT	PACKS	PACKS	PACKS	PACKS	PACKS	PACKS	PACKS	PACKS	PACKS	UNITS
Acido Acetilsalicílico 500 mg	1 000		1 300	1 300			0	0	1 300	1 300	1 300 000
Acido Acetilsalicílico 500 mg	24	97 690		97 690			0	97 690	0	97 690	2 344 560
Ampicilina 250 mg	1 000		320	320			0	0	320	320	320 000
Ampicilina 250 mg	24	12 528		12 528			0	12 528	0	12 528	300 672
Ampicilina 500 mg	24	23 520		23 520			0	23 520	0	23 520	564 480
Ampicilina 500 mg	750		400	400			0	0	400	400	300 000
Aspirina Infantil 150 mg	24	18 992		18 992			0	18 992	0	18 992	455 808
Aspirina Infantil 150 mg	800		325	325			0	0	325	325	260 000
Carbamazepina 200 mg	30	1 180		1 188			0	1 188	0	1 188	35 640
Carbamazepina 200 mg	400		188	188			0	0	188	188	75 200
Chloramphenicol 250 mg	1 000		60	60			0	0	60	60	60 000
Chloramphenicol 250 mg	24	660		660			0	660	0	660	15 840
Cimetidina 400 mg	30	3 888		3 888			0	3 888	0	3 888	116 640
Cimetidina 400 mg	1 000		30	30			0	0	30	30	30 000
Clordiazepóxido 10 mg	500		300	300			0	0	300	300	150 000
Co-Trimoxazole 400/80 mg	1 000		400	400			0	0	400	400	400 000
Co-Trimoxazole 400/80 mg	30	17 232		17 232			0	17 232	0	17 232	516 960
Complexo Vitamínico B	20		10 000	10 000			0	0	10 000	10 000	200 000
Diazepan 10 mg	30	2 172		2 172			0	2 172	0	2 172	65 160
Diazepan 10 mg	1 000		110	110			0	0	110	110	110 000
Diazepan 5 mg	30	18 036		18 036			0	18 036	0	18 036	541 080
Diazepan 5 mg	1 000		240	240			0	0	240	240	240 000
Dimeticona 40 mg	20		20 000	20 000			0	0	20 000	20 000	400 000
Fenobarbital 100 mg	1 000		170	170			0	0	170	170	170 000
Fenobarbital 100 mg	30	3 624		3 624			0	3 624	0	3 624	108 720
Fenobarbital 15 mg	1 000		10	10			0	0	10	10	10 000
Fenobarbital 50 mg	30	1 584		1 584			0	1 584	0	1 584	47 520
Fenobarbital 50 mg	1 000		110	110			0	0	110	110	110 000
Hidróxido de alumínio 350 mg	1 000		280	280			0	0	280	280	280 000
Hidróxido de alumínio 350 mg	24	14 640		14 640			0	14 640	0	14 640	351 576
Hydrochlorothiazide 50 mg	30	14 304		14 304			0	14 304	0	14 304	429 120
Hydrochlorothiazide 50 mg	1 000		350	350			0	0	350	350	350 000
Ibuprofen 200 mg	80		15 000	15 000			0	0	15 000	15 000	900 000
Indometacina 25 mg	20		20 000	20 000			0	0	20 000	20 000	400 000
Metoclopramida 10 mg	1 000		200	200			0	0	200	200	200 000
Metoclopramida 10 mg	30	3 912		3 912			0	3 912	0	3 912	117 360
Metronidazol 250 mg	500		460	460			0	0	460	460	230 000
Metronidazol 250 mg	30	13 008		13 008			0	13 008	0	13 008	390 240
Paracetamol 500 mg	24	104 076		104 076			0	104 076	0	104 076	2 497 824
Paracetamol 500 mg	1 000		600	600			0	0	600	600	600 000
Polivitamínico (Varimine)	20		40 000	40 000			0	0	40 000	40 000	800 000

PRODUCTS	PACK SIZE	SALES 1994 NATIONAL MARKET PRIVATE	NATIONAL MARKET PUBLIC	NATIONAL MARKET TOTAL	EXPORT PRIV	EXPORT PUBL	EXPORT TOTA	TOTAL PRIVATE	TOTAL PUBLIC	TOTAL TOTAL	SINGLE DOSE
Prednisolone 5 mg	30	3 984		3 984			0	3 984	0	3 984	119 520
Prednisolone 5 mg	1 000		80	80			0	0	80	80	80 000
Reserpine 0.25 mg	30	0		0			0	0	0	0	0
Reserpine 0.25 mg	1 000		40	40			0	0	40	40	40 000
Tetracicline 250 mg (clori)	1 000		280	280			0	0	280	280	280 000
Tetracicline 250 mg (clori)	24	35 172		35 172			0	35 172	0	35 172	844 128
Vit C Acido Ascórbico 200 mg	30	21 528		21 528			0	21 528	0	21 528	645 840
Vit C Acido Ascórbico 200 mg	600		300	300			0	0	300	300	180 000
SUB-TOTAL CAPS& TABS Units											18 983 888
DROPS	**ML**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**1 ML**
Cloranfenicol drops auriculaires	15	5 746		5 746			0	5 746	0	5 746	57 460
Cloranfenicol drops auriculaires	10		2 800	2 800			0	0	2 800	2 800	28 000
Dimeticone drops	15		10 000	10 000			0	0	10 000	10 000	150 000
Fenilefrine 0.25 % drops	15	8 504	2 800	9 304			0	8 504	2 800	9 304	139 560
Fenilefrine 0.5 % drops	15	8 760	4 000	12 760			0	8 760	4 000	12 760	191 400
Polivitaminado (Protevite)	15		6 000	6 000			0	0	6 000	6 000	90 000
Sero Fisiológico	20	11 832	5 000	16 832			0	11 832	5 000	16 832	336 640
Vit C Acido Ascórbico 10 %	20	9 324		9 324			0	9 324	0	9 324	186 480
SUB-TOTAL DROPS ml											1 179 560
SYRUPS (DOSE 5 ML)	**ML**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**PACK**	**5 ML**
Amoxicillina 250 mg suporal	100		30 330	30 000			0	0	30 000	30 000	600 000
Benzoato Bencilo	120	8 184	800	8 984			0	8 184	800	8 984	269 520
Bromexina (100 ml) c/c	100		10 000	10 000			0	0	10 000	10 000	200 000
Bromexina (100 ml) s/c	100	22 728		22 728			0	22 728	0	22 728	595 920
Piperazina	130	9 084		9 084			0	9 084	0	9 084	236 184
Complejo B - BA-Sueros	130		20 000	20 000			0	0	20 000	20 000	520 000
Cotrimoxazol Pediat c/c	100		7 000	7 000			0	0	7 000	7 000	140 000
Cotrimoxazol Pediat s/c	100	22 188		22 188			0	22 188	0	22 188	443 760
Difenidramine Clor 0.28 %	100		17 000	17 000			0	0	17 000	17 000	340 000
Difenidramine Clor 0.28 %	150	31 800		31 800			0	31 800	0	31 800	954 000
Gluconate Ferreux	130	11 840		11 840			0	11 840	0	11 840	302 840
Metronidazole 200 mg	100		6 000	6 000			0	0	6 000	6 000	120 000
Promelazine elixir 5mg/5ml	130	18 098		18 098			0	18 098	0	18 098	470 494
Promelazine elixir 5mg/5ml	100		7 000	7 000			0	0	7 000	7 000	140 000
Salbutamol 2 mg/ml	150	13 950		13 956			0	13 956	0	13 956	418 680
Salbutamol 2 mg/ml	100		5 500	5 500			0	0	5 500	5 500	110 000

PRODUCTS	PACK SIZE	SALES 1994 NATIONAL MARKET PRIVATE	NATIONAL MARKET PUBLIC	NATIONAL MARKET TOTAL	EXPORT PRIV	EXPORT PUBL	EXPORT TOTA	TOTAL PRIVATE	TOTAL PUBLIC	TOTAL TOTAL	SINGLE DOSE
Polivitaminico (Varimine)	200		40 000	40 000			0	0	40 000	40 000	1 600 000
SUB-TOTAL (1) SYRUPS 5 ml											7 461 200
SYRUPS (DOSE 10 ML)	ML	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	10 ML
Agua oxigenada 10 vol	250	20 052		20 052			0			20 052	501 300
Alcool Puro Fra REEMBALAM	250	35 568		35 568			0			35 568	889 200
Oleo Amend Doces REEMBALAM	100		5 304	5 304			0			5 304	53 040
Oleo Amend Doces REEMBALAM	55	17 304		17 304			0			17 304	95 172
Prosinal Sol 1 %	500	4 188		4 188			0			4 188	209 400
SUB-TOTAL (2) SYRUPS 10 ml											1 748 112
OINTMENTS & CREAMS	GR	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	1 GR
Acetonito Fluocinolona Syntex	30		10 000	10 000			0	0	10 000	10 000	300 000
Bacitracina+Derminada	30		15 000	15 000			0	0	15 000	15 000	450 000
Clotrimazol Creme 1%	40		20 000	20 000			0	0	20 000	20 000	800 000
Fenilbutazona creme 30mg	30	13 728		13 728			0	13 728	0	13 728	411 840
Heparinóide creme 20g	20	10 896		10 896			0	10 896	0	10 896	217 920
Hidrocortisona creme 1% tubo	30	13 542	6 000	19 542			0	13 542	6 000	19 542	320 840
Laupoderme rosa	50		7 000	7 000			0	0	7 000	7 000	350 000
Laupoderme pó	100		8 000	8 000			0	0	8 000	8 000	800 000
Nitrofurazona creme 0.25 30g	30	7 908	5 000	12 908			0	7 908	5 000	12 908	387 240
Oxido de Zinco 10 % g	650	288	300	588			0	288	300	588	499 800
Vaselina esteril 20 g	20		8 000	8 000			0	0	8 000	8 000	160 000
SUB-TOTAL OINT & CRMS g											4 767 640
SUPPOSITORIES	UNIT	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	UNIT
Paracetamol 125 mg	10		15 000	15 000			0	0	15 000	15 000	150 000
Paracetamol 250 mg	10		20 000	20 000			0	0	20 000	20 000	200 000
Paracetamol 1000 mg	10		5 000	5 000			0	0	5 000	5 000	50 000
SUB-TOTAL SUPPOSIT UNIT											400 000
TOTAL											34 520 400

PRODUCTS	PACK SIZE	WHOLESALER PRIC NATIONAL	WHOLESALER PRIC PORTUG	DIRECT PR.COST	UNIT MARGIN NATIONAL	UNIT MARGIN %	PROD. COSTS INDIRECT	PROD. COSTS TOTAL	FIXED COSTS	TOTAL SALES	COST O SALES	TOTAL MARGIN
		In C. V. Escudos per Pack Size					In CV $ / pack size			In Cape Verde Contos		
TABLETS & CAPSULE	UNIT	20% (1993)										
Acido Acetilsalicilico 500 mg	1 000	1 965.76		291.07	1 674.68	85.2%	583.31	874.38	1 347.06	2 965	875	2 177
Acido Acetilsalicilico 500 mg	24	51.24	81.19	10.37	40.87	79.8%	14.00	24.37	32.33	5 005	1 013	3 992
Ampicilina 250 mg	1 000	4 888.85		2 725.40	2 163.55	44.2%	583.31	3 308.71	1 347.06	1 564	872	692
Ampicilina 250 mg	24	135.31	383.76	80.43	54.88	40.8%	14.00	94.43	32.33	1 895	1 008	888
Ampicilina 500 mg	24	201.58	540.03	135.66	65.93	32.7%	14.00	149.66	32.33	4 741	3 221	1 551
Ampicilina 500 mg	750	5 680.14		3 708.48	1 953.85	34.5%	437.48	4 145.97	1 010.89	2 264	1 483	781
Amirina Infantil 150 mg	24	49.21	111.03	8.68	40.53	82.4%	14.00	22.68	32.33	805	185	770
Amirina Infantil 150 mg	800	1 474.90		151.44	1 323.46	89.7%	466.65	618.08	1 077.05	479	49	430
Carbamazepina 200 mg	30	146.53	263.96	81.70	64.83	44.2%	17.50	99.19	40.41	174	97	77
Carbamazepina 200 mg	400	1 658.64		843.38	815.26	49.2%	233.32	1 076.70	538.82	312	159	153
Chloramphenicol 250 mg	1 000	4 128.47		2 003.33	2 005.14	49.3%	583.31	2 676.64	1 347.06	248	126	122
Chloramphenicol 250 mg	24	114.16	310.00	82.80	51.30	45.0%	14.00	76.80	32.33	75	41	34
Cimetidina 400 mg	30	151.70	2 [illegible]	80.01	95.70	49.3%	17.50	103.51	40.41	500	334	255
Cimetidina 400 mg	1 000	4 582.03		2 471.30	2 110.73	46.1%	583.31	3 054.61	1 347.06	137	74	63
Clordiazepóxido 10 mg	500	1 454.70		538.72	915.98	63.0%	291.65	830.37	673.53	436	162	275
Co-Trimoxazole 400/80 mg	1 000	2 652.57		883.42	1 769.15	67.4%	583.31	1 466.72	1 347.06	1 081	345	736
Co-Trimoxazole 400/80 mg	30	91.71	388.61	36.01	55.70	60.7%	17.50	89.51	40.41	1 580	821	960
Complexo Vitamínico B	20	88.86	109.90	46.95	41.72	47.1%	11.67	58.61	26.94	887	469	417
Diazepan 10 mg	30	67.88	115.63	18.15	51.72	76.2%	17.50	33.65	40.41	147	35	112
Diazepan 10 mg	1 000	2 133.38		430.72	1 702.61	79.8%	583.31	1 014.03	1 347.06	235	47	187
Diazepan 5 mg	30	71.89	106.16	19.33	52.36	73.0%	17.50	36.83	40.41	1 293	349	944
Diazepan 5 mg	1 000	1 802.32		154.84	1 647.48	91.4%	583.31	738.18	1 347.06	433	37	395
Dimeticona 40 mg	20	85.89	73.85	44.64	41.26	48.0%	11.67	56.30	26.94	1 718	893	825
Fenobarbital 100 mg	1 000	2 227.03		508.80	1 718.23	77.2%	583.31	1 092.11	1 347.06	378	86	292
Fenobarbital 100 mg	30	82.96	129.24	28.72	54.24	65.4%	17.50	46.22	40.41	301	104	197
Fenobarbital 15 mg	1 000	2 535.66		785.99	1 749.67	68.8%	583.31	1 369.30	1 347.06	25	8	16
Fenobarbital 50 mg	30	73.27		20.65	52.62	71.8%	17.50	38.15	40.41	116	33	83
Fenobarbital 50 mg	1 000	2 277.28		550.68	1 726.61	75.8%	583.31	1 133.98	1 347.06	251	61	190
Hidróxido de alumínio 350 mg	1 000	2 031.19		345.60	1 685.59	83.0%	583.31	928.91	1 347.06	569	97	472
Hidróxido de alumínio 350 mg	24	51.24	89.15	10.37	40.87	79.8%	14.00	24.37	32.33	751	152	599
Hydrochlorothiazide 50 mg	30	72.59	187.26	20.03	52.50	72.4%	17.50	37.53	40.41	1 038	287	751
Hydrochlorothiazide 50 mg	1 000	1 865.38		207.43	1 657.96	88.9%	583.31	790.73	1 347.06	853	73	780
Ibuprofen 200 mg	60	389.74	432.11	243.98	145.78	37.4%	35.00	278.98	80.82	5 846	3 659	2 187
Indometacina 25 mg	20	117.11	156.93	70.65	46.46	39.7%	11.67	82.32	26.94	2 342	1 413	929
Metoclopramida 10 mg	1 000	2 546.08		774.60	1 771.41	69.6%	583.31	1 357.98	1 347.06	509	155	354
Metoclopramida 10 mg	30	83.35		29.05	54.30	65.1%	17.50	46.55	40.41	326	114	212
Metronidazol 250 mg	500	1 422.83		512.16	910.67	64.0%	291.65	803.81	673.53	855	236	619
Metronidazol 250 mg	30	94.58	316.50	38.41	56.18	59.4%	17.50	55.91	40.41	1 230	500	731
Paracetamol 500 mg	24	69.90	119.74	25.92	43.98	62.9%	14.00	39.92	32.33	7 275	2 698	4 577
Paracetamol 500 mg	1 000	2 719.19		913.05	1 799.08	66.3%	583.31	1 496.36	1 347.06	1 827	548	1 079
Polivitaminico (Varimina)	20	83.79		26.17	37.56	58.9%	11.67	37.83	26.94	2 549	1 047	1 503

PRODUCTS	PACK SIZE	WHOLESALER PRIC NATIONAL	WHOLESALER PRIC PORTUG	DIRECT PR.COST	UNIT MARGIN NATIONAL	UNIT MARGIN %	PROD. COSTS NDIRECT	PROD. COSTS TOTAL	FIXED COSTS	TOTAL SALES	COST O SALES	TOTAL MARGIN
		In C. V. Escudos per Pack Size					In CV $ / pack size			In Cape Verde Contos		
Prednisolone 5 mg	30	88.88	184.95	34.32	55.36	61.7%	17.50	51.82	40.41	357	137	221
Prednisolona 5 mg	1 000	2 450.20		694.78	1 755.43	71.6%	583.31	1 278.08	1 347.08	198	56	140
Reserpina 0.25 mg	30	68.37		18.56	51.81	75.8%	17.50	34.06	40.41			
Reserpina 0.25 mg	1 000	2 146.38		441.60	1 704.78	79.4%	583.31	1 024.91	1 347.06	88	18	68
Tetraciclina 250 mg (clor)	1 000	3 211.95		1 329.57	1 882.38	58.6%	583.31	1 912.88	1 347.08	835	348	489
Tetraciclina 250 mg (clor)	24	94.85	173.42	48.71	48.14	50.8%	14.00	60.71	32.83	3 308	1 843	1 865
Vit C Acido Ascórbico 200 mg	30	73.05		20.48	52.59	72.0%	17.50	37.98	40.41	1 573	440	1 132
Vit C Acido Ascórbico 200 mg	600	1 881.03		259.34	1 021.75	79.8%	349.98	609.33	808.24	384	78	307
SUB-TOTAL CAPS& TABS Units										61 773	25 932	35 841
DROPS	ML		(1993)									
Cloranfenicol drops auriculares	10	34.26		15.80	18.26	56.3%	8.03	21.33	13.47	200	89	111
Cloranfenicol drops auriculares	10	34.78		15.80	19.28	58.4%	8.83	21.33	13.47	97	43	54
Dimeticona drops	15	104.89		68.98	37.84	36.0%	8.75	75.70	20.21	1 048	670	378
Fenilefrina 0.25 % drops	15	43.17		15.77	27.40	63.5%	8.75	24.52	20.21	402	147	255
Fenilefrina 0.5 % drops	15	43.23		15.82	27.41	63.4%	8.75	24.57	20.21	552	202	350
Polivitaminado (Protovite)	15	159.84		112.82	46.81	29.3%	8.75	121.87	20.21	958	677	281
Soro Fisiológico	20	43.52		9.33	34.20	78.6%	11.67	20.99	26.94	733	157	576
Vit C Acido Ascórbico 10 %	20	67.98	81.32	29.71	38.27	56.3%	11.67	41.38	26.94	834	277	557
SUB-TOTAL DROPS ml										4 821	2 282	2 359
SYRUPS (DOSE 5 ML)	ML		(1993)									
Amoxicilina 250 mg susp oral	100	145.18	409.69	94.06	51.14	35.0%	11.67	105.71	26.94	1 356	2 821	1 534
Benzoato Benzila	150	85.19	180.89	30.58	54.61	64.1%	17.50	48.08	40.41	765	275	491
Bromexina (100 ml) c/c	100	81.84	88.50	21.42	37.21	60.4%	11.67	38.09	26.94	816	244	372
Bromexina (100 ml) s/c	100	55.44		19.28	36.16	65.3%	11.67	30.92	26.94	1 852	574	1 078
Piperazina	130	93.29		42.71	50.57	54.2%	16.17	57.88	35.02	847	388	459
Compl B - B4-Supra	130	120.79	248.73	85.83	55.15	45.7%	16.17	80.80	35.02	2 416	1 313	1 103
Cotrimoxazol Pediat c/c	100	75.32	371.45	35.82	39.49	52.4%	11.67	47.49	26.94	527	251	276
Cotrimoxazol Pediat s/c	100	63.60		28.06	37.54	59.0%	11.67	37.73	26.94	1 411	578	833
Difenidramina Clor 0.26 %	100	58.78		20.38	38.40	64.8%	11.67	32.00	26.94	984	348	819
Difenidramina Clor 0.28 %	150	90.90	221.09	38.34	55.56	61.1%	17.50	52.84	40.41	2 891	1 124	1 767
Gluconato Ferroso	130	99.58	78.72	47.96	51.62	51.8%	16.17	69.12	35.02	1 159	558	601
Metronidazole 200 mg	100	149.80		97.89	51.91	34.7%	11.67	109.56	26.94	899	587	311
Prometazina elixir 5mg/5ml	130	83.79	137.61	34.75	48.98	58.5%	16.17	48.92	35.02	1 515	629	886
Prometazina elixir 5mg/5ml	100	64.41		28.73	37.68	58.5%	11.67	38.40	26.94	451	187	264
Salbutamol 2 mg/ml	130	91.73	284.85	38.03	55.70	60.7%	17.50	55.53	40.41	1 260	503	777
Salbutamol 2 mg/ml	100	61.16		24.02	37.13	60.7%	11.67	35.69	26.94	936	132	204

LABORATORIOS INPHARMA ANNEX III

PRODUCTS	PACK SIZE	WHOLESALER PRIC NATIONAL	WHOLESALER PRIC PORTUG	DIRECT PR.COST	UNIT MARGIN NATIONAL	UNIT MARGIN %	PROD. COSTS INDIRECT	PROD. COSTS TOTAL	FIXED COSTS	TOTAL SALES	COST O SALES	TOTAL MARGIN
		In C. V. Escudos per Pack Size					In CV $ / pack size			In Cape Verde Contos		
Polivitaminico (Varimins)	200	133.16		57.10	76.08	57.1%	23.33	80.44	53.66	5 327	2 284	3 043
SUB-TOTAL (1) SYRUPS 5 ml										27 413	12 794	14 620
SYRUPS (DOSE 10 M	ML		(1993)									
Agua oxigenada 10 vol	250	64.96	20.83	20.46	44.50	68.5%	14.58	35.04	33.46	1 503	110	666

Agua adicionada 10 vol	250	64.96	20.83	20.26	44.50	56.5%	14.56	35.04	33.89	1 303	510	592
Alcool Puro Frs REEMBALAM	250	92.85	66.67	48.53	48.12	53.0%	14.56	58.11	33.89	3 295	1 548	1 747
Oleo Amend Doces REEMBALAM	100	80.79	118.67	37.19	23.80	38.8%	5.83	48.02	13.47	322	197	125
Oleo Amend Doces REEMBALAM	55	47.10		31.84	15.26	32.4%	3.21	35.05	7.41	815	551	264
Prodinal Sol 1 %	500	129.90	135.42	40.90	89.00	68.5%	29.17	70.07	67.95	544	171	373
SUB-TOTAL (2) SYRUPS 10 ml										6 279	2 878	3 401
OINTMENTS & CREAM	OR		(1993)									
Acetonido Fluocinolona Syntex	30	187.88		90.28	88.35	40.5%	17.50	118.78	40.41	1 878	993	885

Laupoderme pó	100	254.92		77.73	177.19	69.5%	58.33	138.06	134.71	2 039	622	1 418
Nitrofurazona creme 0.2% 30g	30	75.90	202.08	22.84	53.06	69.9%	17.50	40.34	40.41	980	295	685
Oxido de Zinco 10 % g	850	1 599.82		188.18	1 411.84	88.2%	495.81	885.99	1 145.00	941	111	830
Vaselina esteril 20 g	20	46.18		11.54	34.64	75.0%	11.87	28.21	28.94	389	92	277
SUB-TOTAL OINT. & CRMS g										16 288	7 149	9 137
SUPPOSITORIES	UNIT		(1999)									
Paracetamol 125 mg	10	54.40	80.22	31.86	22.54	41.4%	5.83	37.69	13.47	516	478	338
Paracetamol 250 mg	10	84.69	143.41	57.10	27.59	32.6%	5.83	62.94	13.47	1 894	1 142	552
Paracetamol 1000 mg	10	108.59	192.32	78.98	31.58	29.1%	5.83	82.79	13.47	543	385	158
SUB-TOTAL SUPPOSIT. UNIT										3 052	2 005	1 048
TOTAL										119 425	53 020	66 405

UNIDO comments on expert mission report

Mr. Bastos Silva's completed his mission to Cape Verde recently. During the mission, he assisted INPHARMA to set-up the appropriate methodology for calculation of cost of production with emphasis on determination of direct labour cost and direct material cost. Special training programme has been organized for national specialists to familiarize them with the recommended methods.

Discussions on the different methods to be utilized for setting up the prices for the production were held with the participation of the managerial personnel of the company. The advantages and disadvantages of the methods were analysed and specific recommendations were given.

During the mission, the expert also trained the personnel on the use of spreadsheet software (Lotus 123) for the calculation of prices of raw materials and packaging materials.

Advise was given on the procedures to be followed for valuation of those equipment to be transferred from the state-owned enterprise EMPROFAC to the newly created company.

The expert made clear to the personnel in-charge of accounting in the company the application of different costing concepts. Advise was given on the identification of different production costs centres in INPHARMA.

The offered technical assistance has been satisfactorily evaluated by national authorities and UNIDO. Samples of performed calculations and utilized methods are attached to the report and it is advisable that the company could be provided with the necessary software and hardware to be utilized on the calculation and determination of stocks of materials, management of suppliers and customers, accounting, etc.